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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/717,898

11/21/2003

Kenji Dosaka

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4372 7590 10/20/2008
ARENT FOX LLP
1050 CONNECTICUT AVENUE, N.W.
SUITE 400
WASHINGTON, DC 20036

EXAMINER

MAYEKAR, KISHOR

ART UNIT

PAPER NUMBER

1795

NOTIFICATION DATE

DELIVERY MODE

10/20/2008

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

DCIPDocket@arentfox.com
IPMatters@arentfox.com
Patent_Mail@arentfox.com

Office Action Summary	Application No. 10/717,898	Applicant(s) DOSAKA ET AL.	
	Examiner Kishor Mayekar	Art Unit 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 July 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2 and 3 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 2 and 3 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. The indicated allowability of dependent claim 2 is withdrawn in view of a new ground of rejection.

Claim Rejections - 35 USC § 103

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Amended claims 2 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Caren et al. (US 6,029,442) in light of Evans et al. (US 6,479,023 B1). Caren's invention is directed to a method and apparatus for using free radicals to reduce pollutants in the exhaust gases from the combustion of fuel. Caren discloses that the method comprises the steps of generating plasma in an exhaust gas from an internal combustion engine to produce highly oxidizing free radicals such as hydroxyl radicals (read on the recited $O(^1D)$), OH, hydroperoxyl radical (read on the recited per-hydroxide), HOO, and ozone, O_3 , by a corona discharge from water vapor and residual oxygen in the exhaust gases and oxidizing the pollutants in the exhaust gases (col. 1, lines 13-25; paragraph crossing cols. 4 and 5; col. 7, line 53 through col. 8, line 24; and claim 40). Caren also

discloses that the internal combustion engine is a gasoline engine or a diesel engine (col. 1, lines 29-53) and lean burn engine (col. 2, lines 63-65). Caren further discloses that "[i]gnition of the air/fuel mixture in the cylinder is typically achieved by an ignition device, ..., which heats the mixture to a temperature above its ignition point (col. 1, lines 33-37), "After the combustion of the air/mixture, the resulting exhaust gases are expelled from the combustion chamber to an exhaust manifold" (col. 1, lines 54-56), and "In certain embodiments, in addition to operating at a temperature on the order of 800° C., the corona discharge device must meet ..., and be capable of withstanding thousands of thermal transients of about 800° C. during start-up and cool down of the engine, as well as several million smaller thermal transients where the change in temperature is on the order of about 200° C" (col. 12, lines 54-67). As such Caren's method inherently comprises the added step of heating the exhaust gas, whether the heating is from the combustion of fuel or during the generation of the plasma. Evans teaches the exhaust gases from a combustion engine containing particulate material (col. 1, lines 13-27). As such Caren in light of Evans discloses all the steps as claimed. As to the recited temperature range in the heating step, it has been held that the disclosure in the prior art of any value within the claimed range is an anticipation of that range. And a prima facie case of obviousness exists in the case where the claimed range overlaps range disclosed by the prior art, *In re Wertheim* 191 USPQ 90. As to the limitations of the recited intensity and power density, the subject matter as a whole would have been obvious to one having ordinary skill

in the art at the time the invention was made to have modified the reference's teachings because it has been settled that proper adjustment of a known effective variable of a known or obvious process is within the capabilities of one having ordinary skill in the art. *In re Aller* 105 USPQ 233; *In re Boesch* 205 USPQ 215.

Conclusion

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kishor Mayekar whose telephone number is (571) 272-1339. The examiner can normally be reached on Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam Nguyen can be reached on (571) 272-1342. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service

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Representative or access to the automated information system, call 800-786-9199 (IN
USA OR CANADA) or 571-272-1000.

/Kishor Mayekar/
Primary Examiner, Art Unit 1795